



ABSTRACT OF THE DISCLOSURE

A semiconductor device, such as a memory device or radiation detector, is disclosed, in which data storage cells are formed on a substrate. Each of the data storage cells includes a field effect transistor having a source, drain, and gate, and a body arranged between the source and drain for storing electrical charge generated in the body. The magnitude of the net electrical charge in the body can be adjusted by input signals applied to the transistor, and the adjustment of the net electrical charge by the input signals can be at least partially cancelled by applying electrical voltage signals between the gate and the drain and between the source and the drain.